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ABSTRACT

An explanation of management systems being utilized in vocational education, this pamphlet is designed for vocational educators, administrative personnel, project directors, and other individuals interested in this aspect of program development. Answered are these questions: (1) What are some systems and techniques that may be adapted for use in managing vocational education, (2) How may benefit-cost and cost-effectiveness analysis be used in evaluating vocational education programs, (3) What are some considerations in utilizing systems analysis, (4) What is the role of manpower forecasting in vocational educational planning, (5) What are desirable components in a manpower forecasting model, and (6) What is the difference between policy planning and work planning. The names and addresses of publishers from which the information included was obtained are listed. (SN)

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MANAGEMENT SYSTEMS

ANSWERS TO QUESTIONS ON VOCATIONAL AND TECHNICAL EDUCATION

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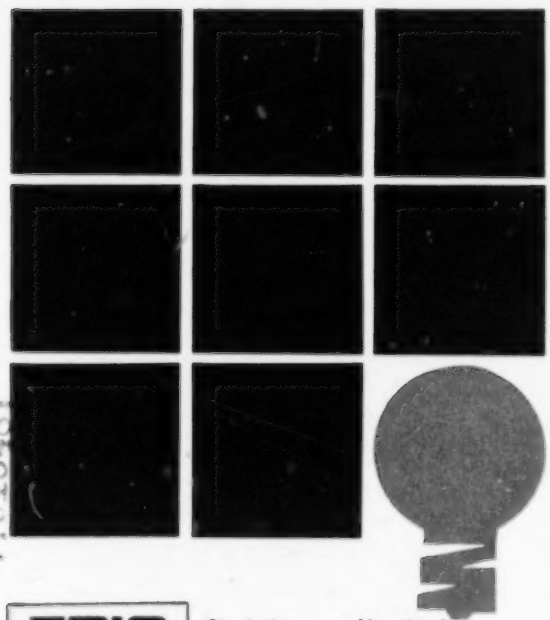

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ERIC Clearinghouse on Vocational and Technical Education

WHAT ARE SOME SYSTEMS AND TECHNIQUES THAT MAY BE ADAPTED FOR USE IN MANAGING VOCATIONAL EDUCATION?

PPBS - A Planning, Programming, and Budgeting System is a synthesis of techniques applied to management and control processes to produce a program budget. PPBS is a method of organizing information to facilitate the allocation of scarce resources to the decision-making process. Various projects and activities contributing to the same objectives are normally grouped as a program. Cost and benefit may be stated in a multi-year program and financial plan. PPBS involves a program analysis that includes the alternative means to achieve given objectives under certain financial and political constraints. (See IN 48 and IN 51)

MIS - A Management Information System involves establishment of a data base that can be used for both operational control and long-range planning. An effective MIS should produce reliable and timely information for decision-makers. (See IN 51)

MBO - Management by Objectives is a process oriented toward the accomplishment of a predetermined objective at some point in the future. MBO encourages horizontal and vertical integration of objectives within an organization, thus reducing the overlapping of activities and responsibilities. In essence, the MBO approach deals with the results that an administrator can expect to achieve within a pre-specified time period. (See IN 48 and IN 51)

Systems Analysis - Such analysis facilitates consideration of objectives, cost, effectiveness, and risk associated with alternative policies or strategies. Systems analysis requires clear delineation of objectives and goals, flexibility to permit change, generation of alternative means to achieve objectives, utilization of models and quantitative tools, an interdisciplinary approach to analysis, and evaluation. (See IN 48 and IN 51)

Network Analysis - Two examples of this technique are Program Evaluation and Review Technique (PERT) and Critical Path Method (CPM). They are both used to plan, schedule, and execute a project. CPM contains a cost function which is a major component in maintaining project control. PERT, unlike CPM, helps to expose probabilities of time estimates for accomplishment of a project. CPM approximates activities that have been conducted before; PERT is more useful in areas where previous activities have not been attempted. (See IN 48 and 51)

Benefit-Cost Analysis or Cost-Effectiveness Analysis - These terms are in popular usage for economic analysis of any program or action. This analysis can be part of a larger decision-making strategy, such as systems analysis or program budgeting, or it may be performed within its own narrower framework. It is a quantitative analysis to provide information for decisions regarding the allocation of scarce resources among numerous competing needs. The essence of benefit-cost analysis lies in its ability to evaluate the total value of benefits against the total costs. Cost-effectiveness studies evaluate alternative strategies for achieving given outputs, thus avoiding the problem of quantifying social benefits. (See IN 8 and IN 57)

HOW MAY BENEFIT-COST AND COST-EFFECTIVENESS ANALYSIS BE USED IN EVALUATING VOCATIONAL EDUCATION PROGRAMS?

Benefit-cost analysis will continue to be utilized, as it replaces subjective evaluation with rational, systematic analysis. An accurate evaluation of a vocational education program requires an accurate specification of objectives, specification of desired outputs, appropriate measures of outputs, and an appropriate model that specifies the manner in which program inputs create the desired program outputs. A program cannot be evaluated in any efficiency sense by comparing costs or benefits separately. High costs imply neither a "high quality" nor an "expensive" program. High benefits do not necessarily imply a worthwhile program. (See IN 57)

WHAT ARE SOME CONSIDERATIONS IN UTILIZING SYSTEMS ANALYSIS?

To utilize effectively systems approaches, one must understand systems concepts and their uses, resource requirements, and limitations. Hastily implemented systems often create more problems than they solve. Normally a phased implementation over a period of time is required. One resource person within the organization with a background in management concepts should have the major responsibility and resources for planning and implementing systems analysis. However, all agency personnel should receive training on systems to be implemented. A systems approach implies subsystems so integrated that the whole displays unique attributes. The work system connotes plan, order, method, and arrangement. (See IN 48 and IN 51)

WHAT IS THE ROLE OF MANPOWER FORECASTING IN VOCATIONAL EDUCATION PLANNING?

Manpower forecasting can improve the sensitivity of vocational education to industrial change. Forecasts can serve as a basis for planners to determine enrollments for each specialty, assess the impact of changing participation by minorities, recommend deletion of programs no longer needed, redirect existing programs, and plan a long-range controlled growth of occupational education programs. Information on changes in industrial production techniques can indicate the need for updating curricula. Vocational counselors and students may use forecasts for career decision-making. Accurate forecasting will also identify alternative sources of labor supply in occupations for which vocational education is being offered.

Manpower forecasting requires that certain assumptions be made concerning future trends. Educators should recognize that forecasts can be no more valid than the assumptions upon which they are based. (See IN 54)

WHAT ARE DESIRABLE COMPONENTS IN A MANPOWER FORECASTING MODEL?

An ideal forecasting model includes supply and demand forecasts, classification detail sufficient to match curriculum content with skill requirements, and technology predictions detailed enough to allow assessment of implications for curriculum. Three subsystems, the labor market, the forecasting process, and

the sociopolitical process, constitute interacting parts of a larger system. A competent forecaster should bear in mind the complex interrelationships of these three processes. In addition, a forecasting model should be replicable at different times and in different places, have reasonable assumptions that are explicitly and clearly stated, be explainable in language understandable to potential users, state forecasted estimate errors, be internally consistent, and require an accuracy analysis as an integral part of the forecasting process. (See IN 54)

WHAT IS THE DIFFERENCE BETWEEN POLICY PLANNING AND WORK PLANNING?

Policy planning is concerned with the identification, description, structuring, and evaluation of goals and objectives. The question is, what should be done, not how to do it. Work planning is the process of determining how to accomplish a selected objective efficiently and effectively. It is concerned with the planning, organizing, scheduling, and controlling of resources. (See IN 63)

MANAGEMENT SYSTEMS: Answers to Questions on Vocational and Technical Education

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ORDERING INFORMATION

Answers to questions in this brochure were obtained from the publications listed below. The publications may be obtained from the indicated sources.

Series	Title	Source, Order No., Cost
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